

Applicant: Pauli Koutonen
Application No.: 09/905,550
Art Unit: 3654

Remarks

Claims 1–20 remain pending in the application. In the Office Action dated April 11, 2002, the Examiner rejected claims 1–5 as anticipated by *Stefanoni*, and rejected claims 6–20 as obvious over *Stefanoni*, in view of the admitted prior art of record.

Claim 1 has been amended to correct indefinite language and more clearly distinguish over the prior art, by making clear that two different adjustable slitter assemblies are used to cut the web into two different sets of widths. Claim 10 has been amended to include “a first winder station having a first plurality of roll centers corresponding to the first slit webs of the first selected widths and a second winder station having a second plurality of roll centers corresponding to the second slit webs of the second selected widths” to more clearly distinguish over the structure of *Stefanoni*. Claim 18 has been amended to have the steps of winding the first web slits onto the first cores of first widths, and the second web slits on to second cores of second widths.

In *Stefanoni* the two sets of blades do not create two different sets of web widths. The prior art of record does not show having two sets of blades which are set to two different cross machine direction sets of positions, and which alternate in cutting the web, to first produce web slits of the first width and then to produce web slits of a second width. The blades of *Stefanoni* may be adjustable in the cross machine direction, but there is no suggestion to have the two sets of blades set to two different widths which are alternately used to produce slits of alternating widths. Instead, *Stefanoni* discloses that “the machine according to the invention has made it possible to eliminate dead times for replacement of the cutting means....” Col. 7, lines 29–31. The disclosure of *Stefanoni* must be read as a whole, the web slits as shown in FIGS. 5D and 5H, wrap from one core directly on to a second core on which the slit webs are wound. Because the web is wound directly from one core onto another core the web width is not changing between cores. The reference in discussing cores with respect to figure 9 does not indicate that cores of different widths

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are used between roll sets. Structures for holding wound cores shown in figures 11 and 12 show uniform holder widths. Further, figures 2 and 3 must be fairly interpreted to show, despite some slight variation in the drawings, that the cores 22, 44 and the holders 34 are of uniform spacing. Therefore the reference does not show applicant's key feature, which the amended claims more clearly set forth, that of a slitter which can switch back and forth between different slitting widths by using two sets of knives which have different cross machine positions the use of which is alternated in a continuous manner. Therefore, there is no suggestion within *Stefanoni* to cut the web alternatively into two different sets of widths.

Stefanoni must be understood to disclose a complicated machine with many parts and presents the danger that hindsight will make applicant's claimed invention appear to be present or implied in the disclosure when it is not. It is useful to look to extrinsic evidence to facilitate the understanding and to forestall the use of hindsight in discerning what is disclosed in *Stefanoni*. *Stefanoni* is listed as assigned to Ghezzi & Annoni S.P.A. of Italy and the products made by the assignee are shown at <http://www.ghezzi-annoni.com/uk/produzione/index.htm>. Attached exhibit A shows a product, which appears to correspond closely to the *Stefanoni* reference. This reference as well as others on the web pages indicate time is needed for changeover, in the case of exhibit A, 10 minutes. Thus it is apparent that the tape winding machines shown in *Stefanoni* accommodates a change in web widths by changing between cores and knife positions, while the machine is not operating.

Applicant's invention eliminates changeover time by using two sets of blades and two winder stations and alternating between them. Applicants invention is particularly important where the slitter is used directly on a papermaking machine as set forth in claims 7, 8, 15, and 16 where stopping the machine to allow change over is not practical.

Applicant in no way disclaims the equivalents of the elements set forth in the claims, the

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Examiner has read the claims as broadly, as is permissible during prosecution, and applicant has amended the claims adding necessarily present elements so that the intended scope of the claims, while remaining substantially the same as the originally submitted claims, are now not subject to an overly broad reading.

Applicant believes that no new matter has been added by this amendment.

Applicant notes the PCT IPER examiner found patentable subject matter see attached IPER.

Applicant submits that the claims, as amended, are in condition for allowance. Favorable action thereon is respectfully solicited.

Respectfully submitted,



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Applicant:	Pauli Koutonen	Date:	July 9, 2002
Date Filed:	July 13, 2001	Docket No.:	FORSAL-16
App. No.:	09/905,550	Art Unit:	3654
For:	Method and Apparatus for Winding a Paper Web	Examiner:	J.Q. Nguyen

Version with Markings to Show Changes Made

Amendments to the Claims, under 37 C.F.R. § 1.121 (c)(1)(ii)

1. (Amended) A method for winding and slitting a paper web, comprising the steps of: dividing a web longitudinally into a plurality of slit webs of first selected widths; winding the slit webs about roll centers, to form rolls at a winding station; periodically cutting the web in [the] a cross machine direction with a web-severing device in conjunction with a roll set change on the winding station, wherein the improvement comprising:
[alternately splitting] slitting the web with a first slitter assembly adjusted to the first selected widths, [and simultaneously adjusting] while a second [splitter] slitter assembly is adjusted into second selected slitting width positions, followed by cutting the web in the cross machine direction with the web-severing device, followed by [splitting] slitting the web with the second [splitter] slitter assembly, [and simultaneously adjusting] while the first [splitter] slitter assembly is adjusted into alternative selected slitting width positions.
6. (Amended) The method of claim 1 wherein, the step of periodically cutting the web includes the operation of using the web-severing device to apply [in conjunction with the operation of the web-severing device,] glue or similar adhesive [is applied] to an area of the full-width length of the web, close to the severing point of the web, in order to attach a tail of the web to the roll centers at the winding station.
7. (Amended) The method of claim 1, further comprising the step of receiving the web from [wherein the web is wound into finished rolls immediately from] a papermaking machine before dividing a web longitudinally into a plurality of slit webs.
9. (Amended) The method of claim 1, further comprising the step of receiving the web from [wherein the method is used after] an unwinder operating with a flying change of reeling drum.

10. (Amended) An apparatus for slitting and winding a paper web comprising: a paper web, defining a direction of travel, extending through a first [splitter] adjustable slitter assembly set to produce a plurality of first slit webs of first selected widths, a second [splitter] adjustable slitter assembly set to produce a plurality of second slit webs of second selected widths, which differ from the first selected widths, a web-severing device, and a first winder station having a first plurality of roll centers corresponding to the first slit webs of the first selected widths and a second winder station having a second plurality of roll centers corresponding to the second slit webs of the second selected widths, the first winder station and the second winder station being arranged to alternate so as to receive corresponding first slit webs of the first selected widths on the first plurality of roll centers in the first winder station and second slit webs of the second selected widths on the second plurality of roll centers in the second winder station, [the winder station having a plurality of roll centers, on which split webs are wound,] wherein the first [splitter] adjustable slitter assembly and the second [splitter] adjustable slitter assembly are arranged to alternate in cutting the web, and each of the first [splitting] slitter assembly, and the second [splitting] slitter assembly being adjustable, when not cutting the web, to vary the web slit widths[. to alternatively cut varying web widths].

11. (Amended) The apparatus of claim 10, wherein the first adjustable slitter assembly and the second adjustable slitter assembly are disposed in succession along the travel direction of the web.

14. (Amended) The apparatus of claim 10, wherein said web-severing device[s] includes means for applying glue or similar adhesive close to a severing point of the web in order to attach a tail of the web to the roll centers.

16. (Amended) The apparatus of claim 15, further comprising a drawing nip for passing the web from the preceding papermaking apparatus to the first [splitter] adjustable slitter assembly and the second [splitter] adjustable slitter assembly, the drawing nip for keeping a proper tension of the running web at [its] the web's delivery from said preceding processing step.

18. (Amended) A method for winding and slitting a paper web, comprising the steps of:
alternately [splitting] slitting a moving web, which defines a travel direction, with a first slitter assembly to divide the web longitudinally into a first plurality of slit webs of selected widths, and winding said first plurality of slit webs onto a first plurality of winding cores of first selected widths, and simultaneously adjusting a second [splitter] slitter assembly into a second selected slitting width position followed by:
cutting the web in the cross machine direction with a web-severing device in conjunction with a roll set change on a winding station which receives the web from the slitter assemblies, followed by [splitting] slitting the web with the second [splitter] slitter assembly and winding said second plurality of slit webs onto a second plurality of winding cores of second selected widths, and simultaneously adjusting the first [splitter] slitter assembly into alternative selected [splitting] slitting width positions.

20. (Amended) The method of claim 18 wherein, during the roll set change of the winding operation, the first slitter assembly is driven into [its] an open position in order to produce a desired length of full-width web, after which the second slitter [assemble] assembly is driven into [its] a slitting position in order to divide the web into slit webs.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference HJ/F 990124		FOR FURTHER ACTION <small>See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)</small>	
International application No. PCT/FI00/00041		International filing date (day/month/year) 19/01/2000	Priority date (day/month/year) 22/01/1999
International Patent Classification (IPC) or national classification and IPC B65H35/02			
Applicant VALMET CORPORATION et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 7 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application 			
Date of submission of the demand 09/08/2000		Date of completion of this report 23.04.2001	
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80219 Munich Tel. +49 89 2399 - 0 Tx 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer Hannam, M Telephone No. +49 89 2399 2153	

Form PCT/IPEA/409 (cover sheet) (January 1994)



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/FI00/00041

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):
Description, pages:

1,1-6 as originally filed

2,2a,7 as received on 22/01/2001 with letter of 22/01/2001

Claims, No.:

1-7 as received on 22/01/2001 with letter of 22/01/2001

Drawings, sheets:

1/1 as received on 22/01/2001 with letter of 22/01/2001

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/FI00/00041

the description, pages:
 the claims, Nos.:
 the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N) Yes: Claims 1-17
No: Claims

Inventive step (IS) Yes: Claims 1-17
No: Claims

Industrial applicability (IA) Yes: Claims 1-17
No: Claims

**2. Citations and explanations
see separate sheet**

INTERNATIONAL PRELIMINARY EXAMINATION REPORT - SEPARATE SHEET International application No. PCT/FI00/00041

Re Item V

Claim 1

Document D1, considered to represent the closest prior art for the invention, discloses a method for winding a paper web in which the web is longitudinally divided before being wound onto cores at a winding station and in which the web is severed during the roll set change operation.

The subject matter of claim 1 differs from D1 in that 2 slitter assemblies are employed, one of which assumes a desired preset position whilst the other is cutting the web into the desired widths. Claim 1 thus meets the requirements of novelty (Article 33(2) PCT).

The objective technical problem being addressed by the invention is how to minimise waste whilst maintaining the speed of the roll set change operation.

The solution found in the characterising portion of claim 1 is not anticipated by the available prior art, nor would the skilled person find a hint in the prior art to suggest modifying the method according to D1 in such a way as to reach the subject matter of claim 1.

It would therefore appear that claim 1 also involves an inventive step according to Article 33(3) PCT.

Claims 2-9

Dependent claims 2-9 concern preferred embodiments of the method according to claim 1 and would therefore appear equally to meet the requirements of the PCT insofar as Article 33(2) and (3) is concerned.

Claim 10

Document D1 also discloses an apparatus for winding a paper web from which the subject matter of independent claim 10 differs in that each of the slitter assemblies are adjustable in advance to enable slitting width changes to occur at full web speed. The

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/FI00/00041

objective technical problem being solved by the subject matter of claim 10 is as stated for claim 1 as are the arguments in support of an inventive step.

It would therefore appear that claim 10 satisfies the requirements of Articles 33(2) and (3) PCT.

Claims 11-17

Dependent claims 11-17 concern preferred embodiments of the apparatus according to claim 10 and would therefore appear equally to meet the requirements of Articles 33(2) and (3) PCT.

PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

Date of mailing (day/month/year) 28 March 2001 (28.03.01)		To: FORSSÉN & SALOMAA OY Yrjönkatu 30 FIN-00100 Helsinki FINLANDE SAARINEN 06.04.01 Forsén & Saloma Oy Yrjönkatu 30 00100 Helsinki Finland										
Applicant's or agent's file reference HJ/F/990124		IMPORTANT NOTIFICATION										
International application No. PCT/FI00/00041		International filing date (day/month/year) 19 January 2000 (19.01.00)										
<p>1. The following indications appeared on record concerning:</p> <p><input checked="" type="checkbox"/> the applicant <input type="checkbox"/> the inventor <input type="checkbox"/> the agent <input type="checkbox"/> the common representative</p> <table border="1"> <tr> <td rowspan="4">Name and Address VALMET CORPORATION Fabianinkatu 9 A FIN-00130 Helsinki Finland</td> <td>State of Nationality FI</td> <td>State of Residence FI</td> </tr> <tr> <td>Telephone No.</td> <td></td> </tr> <tr> <td>Faximile No.</td> <td></td> </tr> <tr> <td>Teleprinter No.</td> <td></td> </tr> </table>				Name and Address VALMET CORPORATION Fabianinkatu 9 A FIN-00130 Helsinki Finland	State of Nationality FI	State of Residence FI	Telephone No.		Faximile No.		Teleprinter No.	
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<p>2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:</p> <p><input type="checkbox"/> the person <input checked="" type="checkbox"/> the name <input type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence</p> <table border="1"> <tr> <td rowspan="4">Name and Address METSO PAPER, INC. Fabianinkatu 9 A FIN-00130 Helsinki Finland</td> <td>State of Nationality FI</td> <td>State of Residence FI</td> </tr> <tr> <td>Telephone No.</td> <td></td> </tr> <tr> <td>Faximile No.</td> <td></td> </tr> <tr> <td>Teleprinter No.</td> <td></td> </tr> </table>				Name and Address METSO PAPER, INC. Fabianinkatu 9 A FIN-00130 Helsinki Finland	State of Nationality FI	State of Residence FI	Telephone No.		Faximile No.		Teleprinter No.	
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<p>3. Further observations, if necessary:</p>												
<p>4. A copy of this notification has been sent to:</p> <table> <tr> <td><input checked="" type="checkbox"/> the receiving Office</td> <td><input type="checkbox"/> the designated Offices concerned</td> </tr> <tr> <td><input type="checkbox"/> the International Searching Authority</td> <td><input checked="" type="checkbox"/> the elected Offices concerned</td> </tr> <tr> <td><input checked="" type="checkbox"/> the International Preliminary Examining Authority</td> <td><input type="checkbox"/> other:</td> </tr> </table>				<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:			
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<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.36</p>		<p>Authorized officer F. Baechler Telephone No.: (41-22) 733.83.88</p>										

problems arise as broke will result for some time during roll set change due to the fact that driving the slitter blades into a new position unavoidably takes a certain time during which no usable web is produced.

<2a>

5 It is an object of the present invention to provide a method and an apparatus suited for use in winding a paper web, said method and apparatus also or particularly being suitable for use in on-line winding immediately at the end of a papermaking process. It is a further object of the invention to provide a method and apparatus for winding a paper web in a manner eliminating broke during roll set change and offering an 10 entire elimination of or at least a minimized disturbance from the above-described problematic factors.

15 To achieve the above goals and others defined later in the text, the method according to the invention is principally characterized in that the number of slitter assemblies employed in the method is at least two and that when given ones of the slitter assemblies are slitting the web into a set of slit webs, the desired ones of the other slitter assemblies are preset into desired slitting width positions for slitting the next set of slit webs.

20 According to a preferred embodiment of the invention, a first slitter assembly is driven open during the roll set change operation in order to run a desired length of a machine-wide web, after which a second slitter assembly is driven into its operating position for slitting the machine-wide web into slit webs for winding into rolls at the winding station, said steps being carried out at least in the case that the next 25 set of rolls is desired to include rolls with widths different from those of the preceding roll set.

30 Furthermore, the apparatus according to the invention is principally characterized by including at least two slitter assemblies, which are adjustable in advance to the next slitting width to change the width at full speed. Accordingly, the invention employs two slitter assemblies disposed in a succession along the travel direction of the web, whereby it is possible during a roll set change

2a

EP application publication 0 380 438 discloses a web slitter and groover system for forming first and second spaced circular grooves in a roll product, said system including first and second web cutting assemblies alternately and sequentially movable to form web segments of diminished width along spaced portions thereof which, when wound, form the grooves.

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severing point of the web in successive sets must be displaced only slightly from the preceding severing point, yet being so close that the adjacent (free) slitter blade of the same assembly cannot be physically adapted to slit at the same point. Nevertheless, the basic concept of the invention remains the same, namely: the position of the slitter blades for the next set can be preset by adjusting the free blades to preset new positions.

It must be understood that the invention is by no means limited to the details of the above-described embodiment representing only one of the advantageous applications of the invention. Instead, varied modifications and adaptations of the invention may be contemplated within the scope and inventive spirit of the appended claims.

AMENDED SHEET

Claims

1. Method for winding a paper web, in which method the web (W) is longitudinally divided into slit webs of desired widths and the slit webs are wound into rolls (R) about roll cores (H) or similar centers at a winding station (17A,17B) and in which method the web (W) is cut by means of a web-severing device (16) in conjunction with the roll set change of the winding operation, characterized in that the number of slitter assemblies (15A,15B) employed in the method for slitting the web (W) is at least two and that when given ones of the slitter assemblies (15A,15B) are slitting the web (W) into one set of slit webs, the desired ones of the other slitter assemblies (15A,15B) are preset into desired slitting width positions for slitting the next set of slit webs.

2. Method according to claim 1, characterized in that slitter assemblies (15A, 15B) are used disposed in a succession along the travel direction of the web.

3. Method according to claim 1 or 2, characterized in that, during the roll set change of the winding operation, the first one of the slitter assemblies (15A, 15B) is driven into its open position in order to produce a desired length of full-width web, after which the second one of the slitter assemblies is driven into its slitting position in order to divide the web (W) into slit webs.

4. Method according to any of claims 1—3, characterized in that for roll set change the web (W) is cut obliquely to the web travel direction at the area of the full-width length of the web (W).

5. Method according to any of claims 1—4, characterized in that prior to the roll set change at a first winding station (17A,17B) the slit webs are wound into finished rolls and a second winding station (17A,17B) is prepared for winding by inserting new cores (H) in place and driving the winding station to a synchronous speed with the speed of the running web (W).

6. Method according to any of claims 1—5, characterized in that, in conjunction with the operation of the web-severing device (16), glue or similar adhesive is applied to the area of the full-width length of the web, close to the severing point of the web, in order to attach the tail of the web (W) to the roll cores (H) at the winding station (17A,17B).

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7. Method according to any of claims 1—6, characterized in that the web (W) is wound into finished rolls immediately at the end of a papermaking process.

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8. Method according to claim 7, characterized in that the web (W) is passed from the papermaking process to the winding section via a drawing nip (N) formed by two rolls (11,12).

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9. Method according to any of claims 1—8, characterized in that the method is suited for use after an unwinder operating with flying reeling drum change.

10. Apparatus for winding a paper web, the apparatus comprising slitter assemblies (15) for longitudinally dividing a web (W) into slit webs of desired widths and a winding station (17A;17B) for winding the slit webs into rolls (R) and a web-severing device for cutting the web (W), characterized in that said apparatus includes at least two slitter assemblies (15A,15B) which are adjustable in advance to the next slitting width to change the width at full speed.

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11. Apparatus according to claim 10, characterized in that the slitter assemblies (15A, 15B) are disposed in a succession along the travel direction of the web.

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12. Apparatus according to claim 10 or 11, characterized by including two winding stations (17A,17B).

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13. Apparatus according to any of claims 10—12, characterized in that said web-severing devices (16) are adapted to cut the web (W) obliquely to the web travel direction.

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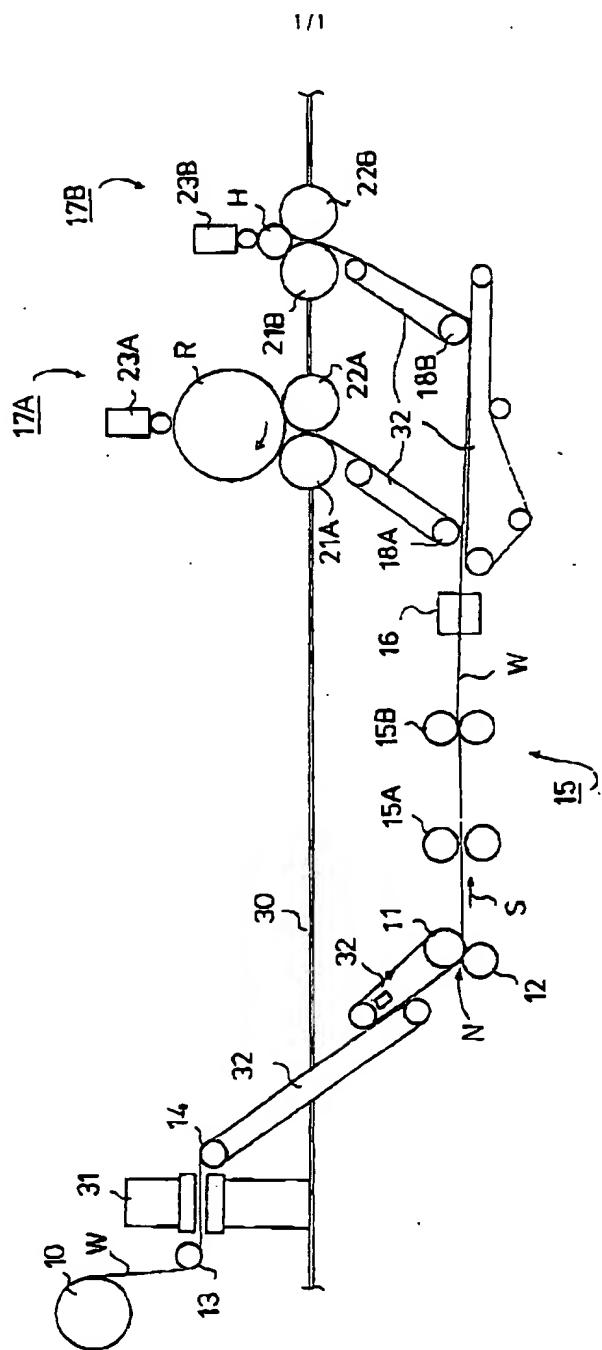
14. Apparatus according to any of claims 10—13, characterized in that said web-severing devices (16) include means for applying glue or similar adhesive close to the severing point of the web in order to attach the tail of the web to the roll cores.

5 15. Apparatus according to any of claims 10—14, characterized in that said apparatus is disposed in conjunction with a papermaking, coating or other web finishing line so as to receive the web directly from said line.

10 16. Apparatus according to claim 15, characterized by including a drawing nip (N) for passing the web from a preceding web treatment/production step to the web-slitting step and for keeping a proper tension of the running web at its delivery from said preceding processing step.

15 17. Apparatus according to any of claims 10—16, characterized in that the apparatus is disposed immediately after an unwinder equipped with a facility for flying reeling drum change.

AMENDED SHEET



AMENDED SHEET